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ABSTRACT

Examined was the feasibility of predicting the potential for abnormal child rearing practices, including child abuse and neglect among 350 mothers. Through interviews, questionnaires, and observations during labor, delivery and the postpartum period, 100 mothers were identified as at high risk for abnormal parenting procedures. Ss were then randomly divided into a High-Risk Intervene (HRI) group and a High-Risk Nonintervene (HRN) group. HRI Ss received comprehensive pediatric followup by a physician or other health personnel, while HRN Ss received routine care. Evaluations were completed on 25 families in each group and a control group when the children were approximately 2 years old. Among results were that perinatal screening procedures successfully identified a high risk group; 5 Ss in the HRN group required hospitalization for serious injuries thought to be secondary to abnormal parenting procedures; and the most accurate predictive information was provided by labor-delivery observations and nursery observations and interveiws. (Author/CL)

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PREDICTION AND PREVENTION OF CHILD ABUSE AND NEGLECT

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ABSTRACT

Utilizing an interview, a questionnaire, and observations during labor, delivery, and the postpartum period, a sample of one hundred mothers was identified as at high risk for abnormal parenting practices. These mothers were randomly divided into a "High-Risk Intervene" group (N=50) and a "High-Risk Nonintervene" group (N=50). The "Intervene" group received comprehensive pediatric follow-up by a single physician, a lay health visitor, and/or a public health nurse in the home. The "Nonintervene" group received routine care, although the results of these screening procedures were shared with the physicians and nurses responsible for their ongoing care. Another group of 50 mothers, who delivered during the same time period and who were assessed as low risk in terms of abnormal parenting practices, served as controls. When the children were approximately two years old (mean age 26.8 months), 25 families in each of the three groups were chosen at random for detailed evaluation.

Results: 1) A high-risk group was successfully identified by the use of perinatal screening procedures; these children had encountered significantly different parenting practices than had the low-risk "control" group. 2) Five children in the "High-Risk Nonintervene" group required hospitalization for serious injuries thought to be secondary to abnormal parenting practices, as contrasted to no such hospitalizations in the "High-Risk Intervene" and "Low-Risk" control groups. 3) Labor-delivery observations, and nursery interviews and observations, provided the most accurate predictive information; prenatal interviews and questionnaires did not add significantly.

Perinatal assessment and simple intervention with families at high risk for abnormal parenting practices significantly improves the infants' chances for escaping physical injury.

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INTRODUCTION

Child abuse is a major problem affecting many thousands of children from all social strata. Increasing knowledge of the general factors that operate in causing children to be abused has resulted in earlier and more accurate diagnosis. Effective therapy is now being instituted at the first indication of injuries in an attempt to break the cycle of parent-induced child abuse and neglect. Although the overall dynamics operating to produce child abuse and neglect are becoming better understood, the specific factors that allow us to predict abnormal child-rearing patterns in certain families have not been generally established. The ability to make accurate predictions of abnormal parenting practices will greatly facilitate the initiation of effective intervention before significant damage has been allowed to occur.

This study examines the feasibility of predicting the potential for some abnormal child-rearing practices, of which child abuse and neglect is one extreme. It concentrates on the perinatal and early neonatal periods, since these offer an excellent opportunity to make assessments of a newborn infant's behavior, to observe the mother's and father's responses to their child, and to study the interaction between them. The perinatal period also provides easy accessibility to individuals as they become a family, permits observations of the mother and child during a critically sensitive time (1), and allows pediatric intervention to begin early whenever there is indication that potentially harmful child-rearing patterns may occur. Intervention at this time can be aimed at increasing strengths within the family so that a child may have the opportunity to reach his physical, emotional and intellectual potential.

METHODS

From November 1971 to March 1973, a population sample was drawn from 350 mothers who were having either their first or second child at Colorado General Hospital. Infants with neonatal conditions severe enough to require transfer to the neonatal intensive care unit were excluded from the study.

Some or all of the following screening procedures were carried out to determine which of them were most likely to be predictive of "abnormal parenting practices."

1. Collection of prenatal information: Data were gathered regarding the parents' upbringing, feelings about this pregnancy, expectations for the unborn child, attitudes towards discipline, availability of support systems, and the present living situations. (Table 1a)

2. Administration of a questionnaire: (2) A 74-item questionnaire was administered to the mother during the prenatal or early postnatal period. The questions covered information

similar to that obtained in the prenatal interview (see No. 1 above).

3. Assessment of labor and delivery room information: These data were collected by one or more of the following methods:

a. Mother-infant interaction forms were completed by the labor and delivery room nurses. The nurses recorded the parents' verbal and nonverbal interactions with their child during their first encounter with him/her (Table 1b). The nurse also added any additional pertinent observations about the parents' behavior.

b. In a number of instances, with the parents' permission, videotapes were made of mothers' and infants' interaction so as to be able to carry out a more thorough assessment of the quality of this interaction and to check the accuracy of observations made by labor and delivery room nurses and physicians.

c. The delivery room staff was encouraged to provide anecdotal information regarding their observations of the parents and children. This information was also utilized to assess parenting potential (Table 1b).

4. Observations and/or interview during the postpartum period: During the postpartum period, the parents were again interviewed to obtain or expand on information gained during the prenatal interview (see No. 1 above and Table 1c). Information obtained from direct observation of the mother-infant interaction during the postpartum stay in the hospital was also recorded.

From the data gathered in two or more of these areas, parents were assessed as to their parenting potential. One hundred mothers identified as having psychologic, interactional, and life-style dynamics (3-5) which might result in "abnormal parenting practices" were randomly assigned to a "High-Risk Intervene" group (N=50) or a "High-Risk Nonintervene" group (N=50). Fifty mothers who also delivered their first or second child at the hospital in the same time period and who were assessed as low-risk in terms of abnormal parenting potential were selected as controls.

"Intervention" in this study meant the provision of pediatric care by one pediatrician at the Medical Center where the child was born. This pediatrician examined the infant during his stay in the newborn nursery, talked with the parents on the postpartum ward, and scheduled the first pediatric clinic visit to take place before the infant was two weeks old. Thereafter, the pediatrician saw the child at scheduled bimonthly visits. Additional pediatric visits took place whenever the doctor or the mother felt that the child should be seen. In addition to seeing the child during visits to the clinic, the pediatrician also contacted the family by telephone two or three days after discharge from the hospital, as well as during the subsequent weeks when a clinic visit was not scheduled. Additional telephone

calls were initiated by the pediatrician to ascertain the status of any problems that may have become apparent in previous clinic visits and/or telephone conversations. The physician also contacted the family to provide support to them whenever a medical or other crisis was known to be present. It was not pointed out to the study families that this service was exceptional; it was simply provided as part of the child's well-baby care.

In addition to the contact between the pediatrician and the family, "intervention" also included weekly visits to the home by public health nurses. The public health nurses had been notified of the pertinent findings obtained by the interview, assessment of the delivery room interaction, and the questionnaires. Whenever necessary, referrals were made to other medical facilities or mental health clinics. Lay health visitors (6) (lay persons who visited in the homes to assess the general health status of the child, to offer emotional support to the entire family, and to provide liaison with the professional health system) were utilized whenever indicated.

"Nonintervention" meant that the investigators did nothing directly for the family after discharge. However, all of the available information was routinely shared with attending hospital staff, community agencies such as visiting nurse service, and the family physician or clinic.

When a child was between the ages of 17 and 35 months (mean age 26.8 months) a home visit was made to 25 randomly-selected families in each of the three categories: "High-Risk Intervene" (HRI), "High-Risk Nonintervene" (HRN), and "Low-Risk" (LR). During this home visit, the mother was interviewed and medical and social information involving the entire family was collected. Also, observations of mother-child interaction were made and the Denver Developmental Screening Test (DDST) was administered to the child.

The incidence of various findings was determined for each child during the first 17 months of life (at the time of detailed evaluation, the youngest child was 17 months old). In order to determine whether a group at risk for deficient parenting had actually been predicted, children were assessed for the presence of incidents of "abnormal parenting practices," which included all verified reports of abuse and neglect to the Central Child Abuse Registry, injury secondary to lack of adequate care and supervision, injuries suspicious for inflicted trauma, failure to thrive which was thought to be secondary to deprivation (7), relinquishments, foster care placements, and parental kidnappings. Children were also assessed as to the number of incidents of trauma thought to be true accidents, reasons why children were no longer in their biologic homes, their immunization status, and their performance on the Denver Developmental Screening Test.

Central Child Abuse Registry reports and indications of "abnormal parenting practices" involving medical concern were

categorized for all three study groups as a comparison of the effect of intervention.

Data were also compiled to help indicate which of the four screening procedures (prenatal interview, questionnaires, labor and delivery room observations, or postpartum interviews and observations) resulted in the greatest percentage of correct predictions of "parenting potential."

The three groups were compared by ordinary chi square tests appropriate for 3 by 2 contingency tables. These "total" chi squares were partitioned into single degrees of freedom chi squares appropriate for comparing the two high-risk groups with the low-risk group (HR vs. LR) and the "High-Risk Intervene" group with the "High-Risk Nonintervene" group (HRI vs. HRN), as discussed by Kastenbaum (8). (See Table 4.)

RESULTS

1. The Ability To Predict

a. Indications of abnormal parenting: By the time of detailed evaluation there were 22 indications of "abnormal parenting practices" in the high-risk groups (25 HRI and 25 HRN) and 2 indications in the control group of 25. The high-risk groups differed significantly from the low-risk group ($p < .01$). In the total population sample (150 children), eight high-risk children and no low-risk children were reported to the Central Child Abuse Registry ($p < .04$).

There were 3 cases of failure to thrive (weight below the third percentile, height and head circumference above the third percentile) thought to be secondary to deprivation (7) in the HRI group. Although children in the HRN group were not followed as closely, information was obtained by chart review and contact with the child's physician that two of these children exhibited failure to thrive thought to be secondary to deprivation. There were no such cases in the low-risk group.

b. Accidents: There were 31 children in the high-risk groups and 11 children in the low-risk group who had sustained at least one accident which required medical attention during the time period of the study. During the first 17 months of life, 22 children in the high-risk groups and 4 children in the low-risk group had at least one accident requiring medical attention ($p < .02$).

c. Immunization status: At one year of age, 47 out of the 50 high-risk children (25 HRI and 22 HRN) were up to date with their immunizations. In the low-risk group, 24 of 25 had similar immunization status. The difference in the groups is not statistically significant.

d. Denver Developmental Screening Test: DDST assessment of high-risk children revealed that there were 3 whose results were

recorded as questionable, 3 children who were untestable, and 44 who were normal (9). In the low-risk group, all 25 were normal. There is no statistically significant difference between these groups. If the results of the DDST are examined by counting the number of clear failures (test items to the left of the child's chronological age), 10 high-risk children versus no low-risk children had clear failures ($p < .02$).

e. Reasons for no evaluation: There was a significantly increased incidence ($p < .04$) of infants assessed as being at risk for "abnormal parenting practices" not being in their biologic home at the time of the follow-up evaluation. All low-risk children were in their biologic home; but 8 high-risk children were either in foster care, permanently living with relatives, or had been legally relinquished.

2. Results of Intervention on the Incidence and Outcome of Abnormal Parenting Practices

a. Incidence: Between the HRI group and the HRN group there were no significant statistical differences on the basis of Central Child Abuse Registry reports, indications of "abnormal parenting practices," accidents, immunizations, or Denver Developmental Screening Test scores.

b. Outcome: Another way to measure the effect of intervention within the high-risk groups is to describe the quality of differences in the types of "abnormal parenting practices" that occurred. No child in the low-risk group and no child in the HRI group suffered an injury thought to be secondary to "abnormal parenting practices" that was serious enough to require hospitalization for treatment. However, five children in the HRN group required inpatient treatment for serious injuries ($p < .01$). These injuries included a fractured femur, a fractured skull, barbiturate ingestion, a subdural hematoma, and third-degree burns. Although these five injuries were treated in local hospitals, only two of them had been reported to the Central Child Abuse Registry.

3. Screening Procedures

Information from observations of labor and delivery room interactions was analyzed individually and resulted in 76.5% correct predictions of parenting potential. The questionnaire alone resulted in 57.5% correct predictions. The prenatal interview alone resulted in 54.4% correct predictions, and the postpartum interview/observations resulted in 54% correct predictions. If all four parameters are included together, they resulted in 79% correct predictions.

During the initial interviews and observations, four factors were considered as possible indicators of high risk: the mother's race, the family's socioeconomic status (as determined by the hospital's financial ratings), the mother's marital status, and the mother's age. In the study population, the mother's race did not prove to be a significant variable. There

was a trend toward "financial difficulty" in mothers in the high-risk groups. The mother's marital status and age differed significantly between the high-risk groups and the low-risk group; single and young mothers were considered to be at higher risk for abnormal parenting practices.

DISCUSSION

Child abuse is now being reported approximately 300,000 times each year in our country. The figure rises to 1 million if neglect is included. About 60,000 children have significant injuries; about 2,000 die and 6,000 have permanent brain damage (6). Multidisciplinary research (sociologic, pediatric, nursing, psychiatric, and legal) has made possible earlier diagnosis and more successful treatment programs; however, as in many other aspects of medicine, prevention is the ultimate goal.

Medical and nursing staff who work in the prenatal, labor and delivery area and the neonatal nursery are ideally situated to make sensitive observations of a family's interactional behavior. The assessment of attitudes and feelings has been a part of pediatrics for many years. It is now time to formally utilize these assessments in the implementation of supportive intervention for families in need. Systematic use of a prenatal interview, questionnaire, labor and delivery observations, and postpartum interviews/observations can identify a population at risk for "abnormal parenting practices." These data show that accurate prediction of families in need of extra services is possible, as evidenced by the statistical differences between the high-risk groups and the low-risk group in the areas of "abnormal parenting practices," Central Child Abuse Registry reports, the number of accidents (by 17 months of age), children no longer in their biologic homes, and children exhibiting clear failures on the DDST.

It is a belabored point that battering parents tend to lack motivation toward initiating helping services. However, when the health care providers (pediatricians, public health nurses, and lay health visitors) initiate an outreach approach with high-risk families, a comprehensive medical program can be successful.

Recently there has been an increased awareness of the abnormal behavior characteristics and the developmental lags seen in abused children (10, 11). This has been observed in the children after documentation of abuse, but with the assumption that the children have been living in an "abusive environment" prior to the physical abuse. In this study, 20% of children thought prospectively to be at risk for abnormal parenting had at least one clear failure on the DDST. These are children thought to be living in an environment deficient in parenting.

Now that it is largely possible to identify a population at risk for "abnormal parenting practices," the next step is to

determine the success and practicality of initiating early intervention with these families. Although there was no statistically significant difference in the incidence of "abnormal parenting practices" between the HRI and the HRN groups, there was a qualitative difference in the injuries in the study groups. In the HRI and the low-risk groups, no child required hospitalization for treatment of a serious injury thought to be secondary to "abnormal parenting practices. However, in the HRN group five children required treatment for trauma or poisoning. One of the five serious injuries (the burns) was preceded by relatively minor inflicted trauma, including cigarette burns, scratch marks and strap marks. These all received medical attention but were never reported, nor was an attempt made to involve other helping agencies in an effort to prevent further injuries. There is a possibility that the third-degree burns and the resulting contractures could have been prevented if intervention had been initiated promptly. In another case, a subdural hematoma and its resulting intellectual deficit and neurologic handicap might have been prevented if intervention had been instituted during a "social admission" to a hospital just prior to the injury. If appropriate interventions to alleviate social pressure had been undertaken at this point, there is a possibility that the injury would not have occurred. In the low-risk group, injuries (a minor burn and a metacarpal fracture) thought to have occurred because of negligence both involved children over two years of age. These children were well into the accident-prone toddler years, whereas injuries in the high-risk groups occurred at younger ages.

There was also an increased incidence of failure to thrive in the high-risk groups. Early identification and effective intervention in one case of failure to thrive in the HRI group was therapeutic for that child. This baby was promptly hospitalized at five weeks of age when failure to thrive was discovered. The weight gain was re-established in the hospital and failure to thrive completely resolved by four months of age. On the two-year follow-up, the child had normal growth parameters.

Therefore, in the HRI group, it appears that modest intervention precluded any injuries severe enough to require hospitalization for treatment and any injury that resulted in prolonged disability. The less serious injuries and the failure-to-thrive baby in the HRI group were promptly reported and effective community intervention established, which may have prevented subsequent, more serious problems.

The concept of early preventive pediatric and community intervention will, it is hoped, lead to progress in prevention of the harmful effects of child abuse and neglect. Families identified as being in need of extra services must have access to intensive, continuous intervention which is both positive and supportive. It makes little sense to provide excellent prenatal, obstetrical and neonatal pediatric care in our hospitals, only to abandon the most needy young families at the hospital door and leave to chance, or to parent motivation, the needed access to helping professionals.

SUMMARY

In this study, information gained from observers in the delivery room was most accurate in predicting potential for abnormal parenting practices. The questionnaire did not add significantly to the accuracy of prediction. If delivery room observation is not feasible and only one opportunity for evaluation exists, the early postpartum period affords the best opportunity for collection and analysis of prenatal, labor and delivery, and postpartum observations. Such observations are non-invasive and should be part of obstetrical and postpartum routine.

Immediate, effective intervention by physicians, public health nurses, and/or lay health visitors can significantly decrease many "abnormal parenting practices." In this study, such intervention prevented serious injury in a high-risk population.

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TABLE 1 Warning Signs

These are indications of possible problems. A high-risk situation is created by varying combinations of these signs, the family's degree of emphasis upon them, and the family's willingness to change. The interviewer must take into consideration the mother's age, culture, and education, as well as observations of her affect and the significance of her feelings. Many of these signs can be observed throughout the perinatal period; they are listed in this order because they are found most commonly at these times.

1a - Observations during the prenatal period

The mother seems overly concerned with the baby's sex or performance.

The mother exhibits denial of the pregnancy (not willing to gain weight, no plans for the baby, refusal to talk about the situation).

This child could be "one too many."

The mother is extremely depressed over the pregnancy.

The mother is very frightened and alone, especially in anticipation of delivery. Careful explanations do not seem to dissipate the fears.

There is lack of support from husband and/or family.

The mother and/or father formerly wanted an abortion or seriously considered relinquishment and have changed their minds.

The parents come from an abusive/neglectful background.

The parents' living situation is overcrowded, isolated, unstable, or is intolerable to them.

They do not have a telephone.

There are no supportive relatives and/or friends.

1b - Observations during delivery

Written form with baby's chart of parent's reaction at birth.

How does the mother LOOK?

What does the mother SAY?

What does the mother DO?

When the father attends delivery, record his reactions as well.

Passive reaction, either verbal or non-verbal: mother doesn't touch, hold, or examine baby, nor talk in affectionate terms or tones about the baby.

Hostile reaction, either verbal or non-verbal: mother makes inappropriate verbalizations, glances, or disparaging remarks about the physical characteristics of the child.

Disappointment over sex of the baby.

No eye-contact.

Non-supportive interaction between the parents.

If interaction seems dubious, talk to the nurse and doctor involved with delivery for further information.

1c - Observations during the postpartum period

The mother doesn't have fun with the baby.

The mother avoids eye contact with the baby and avoids the direct en face position.

The verbalizations to the infant are negative, demanding, harsh, etc.

Most of the mother's verbalizations to others about the child are negative.

The parents remain disappointed over the sex of the child.

Negative identification of the child: significance of name, who he/she looks like and/or acts like.

The parents have expectations developmentally far beyond the child's capabilities.

The mother is very bothered by crying; it makes her feel hopeless, helpless, or like crying herself.

Feedings: the mother sees the baby as too demanding; she is repulsed by his messiness, or ignores his demands.

Changing diapers is seen as a very negative, repulsive task.

The mother does not comfort the baby when he cries.

The husband's and/or family's reactions to the baby have been negative or non-supportive.

The mother is receiving little or no meaningful support from anyone.

There are sibling rivalry problems or a complete lack of understanding of this possibility.

The husband is very jealous of the baby's drain on mother's time, energy and affection.

The mother lacks control over the situation. She is not involved, nor does she respond to the baby's needs, but relinquishes control to the doctors or nurses.

When attention is focused on the child in her presence, the mother does not see this as something positive for herself.

The mother makes complaints about the baby that cannot be verified.

TABLE 2 Positive Family Circumstances

1. Parents see likable attributes in baby, see baby as separate individual.
2. Baby is healthy and not too disruptive to parents' life-style.
3. Either parent can rescue the child or relieve the other in a crisis.
4. Marriage is stable.
5. Parents have a good friend or relative to turn to, a sound "need-meeting" system.
6. Parents exhibit coping abilities; i.e., capacity to plan and understand need for adjustments because of new baby.
7. Mother's intelligence and health are good.
8. Parents had helpful role models when growing up.
9. Parents can have fun together and enjoy personal interests or hobbies.
10. This baby was planned or wanted.
11. Future birth control is planned.
12. Father has stable job.
13. Parents have their own home and stable living conditions.
14. Father is supportive to mother and involved in care of baby.

TABLE 3 Special Well-Child Care for High-Risk Families

1. Promote maternal attachment to the newborn.
2. Contact the mother by telephone on the second day after discharge.
3. Provide more frequent office visits.
4. Give more attention to the mother.
5. Emphasize nutrition.
6. Counsel discipline only around accident prevention.
7. Emphasize accident prevention.
8. Use compliments rather than criticism.
9. Accept phone calls at home.
10. Provide regular home visits by Public Health Nurse or Lay Health Visitor

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TABLE 4 Summary of Statistical Analysis

Item	HRI	HRN	LR	Partitioned χ^2 results		
				HR-LR	HRI-HRN	Total
Total study population (150): Central Registry reports	6	2	0	$p < .04$	$p < .08$	$p < .03$
Detailed evaluation of population (25 in each category)						
Central Registry reports						
at time of home evaluation (mean 26.8 months)	2	1	0	$p < .22$	$p < .48$	$p < .36$
by 17 months of age	1	1	0	$p < .60$	$p < .99$	$p < .30$
Indications of abnormal parenting practices						
by time of home evaluation	11	11	2	$p < .01$	$p < .99$	$p < .01$
by 17 months of age	10	10	0	$p < .01$	$p < .99$	$p < .01$
Failure to thrive	3	2	0	$p < .20$	$p < .60$	$p < .30$
DDST not normal						
by test manual (see Ref. 9)	3	3	0	$p < .08$	$p < .99$	$p < .20$
by failed items	7	3	0	$p < .02$	$p < .10$	$p < .02$
Accidents						
by time of home evaluation	16	15	11	$p < .14$	$p < .78$	$p < .33$
by 17 months of age	12	10	4	$p < .02$	$p < .56$	$p < .05$
Not in biologic home	5	3	0	$p < .04$	$p < .36$	$p < .07$
Appropriate immunization status at one year	25	22	24	$p < .72$	$p < .16$	$p < .16$
Inpatient treatment for injury	0	5	0	$p < .11$	$p < .01$	$p < .01$

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